

## **REMARKS**

In the Office Action, the Examiner rejected claims 16 and 19 under 35 U.S.C. § 102(e) as being anticipated by Han et al., U.S. Patent No. 6,399,421, claims 1 and 5 under 35 U.S.C. §103(a) as being unpatentable over Han et al., claim 2 under 35 U.S.C. §103(a) as being unpatentable over Han et al. in view of Orcutt, U.S. Patent No. 5,735,030, claim 6 under 35 U.S.C. §103(a) as being unpatentable over Han et al. in view of Su et al., U.S. Patent No. 6,437,429, claims 12-15 under 35 U.S.C. §103(a) as being unpatentable over Han et al. in view of Orcutt, claim 17 under 35 U.S.C. §103(a) as being unpatentable over Han et al. in view of Su et al., claim 18 under 35 U.S.C. §103(a) as being unpatentable over Han et al. The rejections are fully traversed below. Reconsideration of the application is respectfully requested based on the following remarks.

Claims 1-2, 5-6, and 12-19 remain pending in this application.

## **TELEPHONE INTERVIEW**

The Examiner is thanked for the telephone interview of March 16, 2004. The participants of the telephone interview included Examiner Vu, Examiner Vu's supervisor Eddie (surname unknown), inventor Bob Wallace, and Attorney Phillip Lee. The Han et al. reference and the use of aluminum bonding wires was discussed. As suggested by Examiner Vu's supervisor, the following section will briefly describe the reasons why Han et al. fails to teach or disclose the inventions of independent claims 1, 12, and 16.

## **PATENTABILITY OF CLAIMS 1-2, 5-6, AND 12-19**

Han et al. describes attaching gold bonding wires within a plastic (or resin) molded semiconductor device package. Han et al. reflects the general understanding that gold wires 40 are used in semiconductor packages that are packaged in plastic (or resin) molding 66. *See* page 2, column 1, Plastic Packaging and the Effects of Surface Mount Soldering Techniques, Microchip Technology Inc., 1995. Gold is used since the likely alternative wire material of aluminum becomes corroded by most molding compounds. *See* page 1, bottom of column 2, Plastic Packaging and the Effects of Surface Mount Soldering Techniques. Gold wires are used in plastic semiconductor packages also because the plastic injection molding processes cause brittle aluminum wires to break.

As such, Han et al. does not teach or suggest the use of aluminum wires in plastic, molded semiconductor devices. Therefore, independent claim 16 is patentable in light of Han et al. and the other cited references since claim 16 pertains to a semiconductor device package with aluminum bonding wires within a plastic package.

In another respect, since Han et al. utilizes gold bonding wires 40, it is generally understood that Han et al. teaches the conventional technique of ball bonding wires 40 onto the semiconductor dice. This is because gold wires are generally used for ball bonding techniques (while aluminum wires are used for wedge or stitch bonding techniques). *See* page 350, Fundamentals of Microsystems Packaging, McGraw-Hill, 2001.

As such, Han et al. does not teach or suggest stitch bonding each end of a wire to a semiconductor die and a contact lead, respectively. Therefore, independent claims 1 and 12 are patentable in light of Han et al. and the other cited references because these independent claims pertain to wires that are stitch bonded at each end to a semiconductor device and a contact lead, respectively.

In light of the above, Han et al. certainly does not teach or suggest aluminum bonding wires that are stitch bonded at each end, in a plastic molded semiconductor device as recited in independent claim 16.

Finally, in reference to the Examiner's reference to "stitch bonded" as a product-by-process limitation, it is respectfully submitted that a "stitch bond" describes a structural limitation wherein the side of a wire is pressed onto a contact point. *See* pictures of ball and wedge bonds on the first page of Nordic Electronic Packaging Guideline, <http://extra.ivf.se/ngl/A-WireBonding/ChapterA.htm>.

In conclusion, it is submitted that Han et al., Orcutt, and Su et al., alone or in any combination, do not teach or suggest the features of claims 1, 12, or 16. Therefore, it is submitted that claims 1, 12, and 16 are patentably distinct from the cited references. It is submitted that dependent claims 2, 5-6, 13-15, and 17-19 are also patentably distinct from the cited references for at least the same reasons as those recited above for their corresponding independent claims. Thus, it is respectfully requested that the Examiner withdraw the rejection of claims 1-2, 5-6, and 12-19 under 35 U.S.C §103(a).

## SUMMARY

It is respectfully submitted that all pending claims are allowable and that this case is now in condition for allowance. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

If any fees are due in connection with the filing of this Amendment, the Commissioner is authorized to deduct such fees from the undersigned's Deposit Account No. 50-0388 (Order No. SDK1P007).

Respectfully submitted,  
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Phillip P. Lee", followed by a long horizontal line extending to the right.

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